

KASC INFORMATION SERVICES

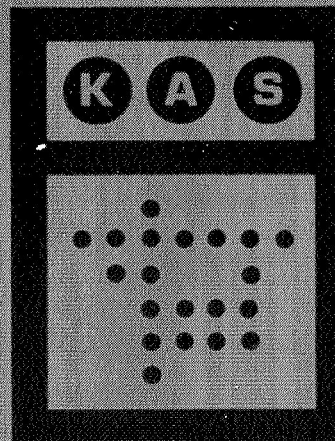


Final Report
Development of a Campus Based
Information System
with Initial Emphasis on Chemistry

March, 1971

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KNOWLEDGE AVAILABILITY SYSTEMS CENTER
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<p>The document reports on the first year tasks performed at the Knowledge Availability Systems Center (KASC) of the University of Pittsburgh in a cooperative resource sharing program of the six National Aeronautics and Space Administration Regional Dissemination Centers.</p> <p>The contract number for the work was NSR 39-011-105. The contract period was September 1, 1969 to August 31, 1970 with a three month extension to November 30, 1970</p> <p>The contributions of the KASC to this program included: (1) the development of current awareness and retrospective search services on the Chemical Abstract Service (CAS) <u>Condensates</u> file. (2) the execution of two workshops for the training of RDC personnel in the use of the KASC's search systems. (3) the development of computer software to search the (CAS) <u>Condensates</u> file when that file became available in the Standard Distribution Format defined by Chemical Abstracts Service.</p> <p>Income and usage statistics are given for the (CAS) <u>Condensates</u> file during the contract period. The same information is given for files located at other RDCs which the KASC accessed.</p>			

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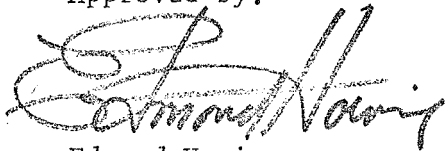
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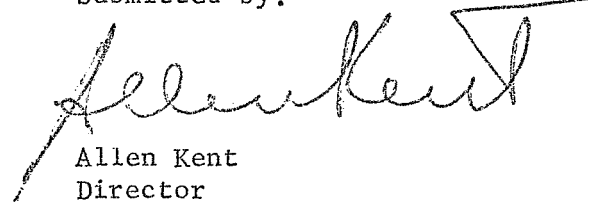
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ABSTRACT

The document reports on the first year tasks performed at the Knowledge Availability Systems Center (KASC) of the University of Pittsburgh in a cooperative resource sharing program of the six National Aeronautics and Space Administration Regional Dissemination Centers.

The contract number for the work was NSR 39-011-105. The contract period was September 1, 1969 to August 31, 1970 with a three month extension to November 30, 1970.

The contributions of the KASC to this program included:

- The development of current awareness and retrospective search services on the Chemical Abstract Services (CAS) Condensates file.
- The execution of two workshops for the training of RDC personnel in the use of the KASC's search systems.
- The development of computer software to search the (CAS) Condensates file when that file became available in the Standard Distribution Format defined by Chemical Abstracts Service.

Income and usage statistics are given for the (CAS) Condensates file during the contract period. The same information is given for files located at other RDCs which the KASC accessed.

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INTRODUCTION

The National Aeronautics and Space Administration is supporting six Regional Dissemination Centers (RDCs) throughout the United States. Each of these centers is engaged in one or more programs aimed at facilitating the application of government sponsored, aerospace research to problems of the private section of the economy.

The six NASA sponsored RDCs are:

THE WESTERN RESEARCH APPLICATION CENTER (WESRAC)
UNIVERSITY OF SOUTHERN CALIFORNIA
LOS ANGELES, CALIFORNIA

TECHNOLOGY APPLICATION CENTER (TAC)
UNIVERSITY OF NEW MEXICO
ALBUQUERQUE, NEW MEXICO

AEROSPACE RESEARCH APPLICATION CENTER (ARAC)
INDIANA UNIVERSITY
BLOOMINGTON, INDIANA

NORTH CAROLINA SCIENCE AND TECHNOLOGY
RESEARCH CENTER (NCSTRC)
RESEARCH TRIANGLE PARK (DURHAM), N. C.

NEW ENGLAND RESEARCH APPLICATION CENTER (NERAC)
UNIVERSITY OF CONNECTICUT
STORRS, CONNECTICUT

KNOWLEDGE AVAILABILITY SYSTEMS CENTER (KASC)
UNIVERSITY OF PITTSBURGH
PITTSBURGH, PENNSYLVANIA

Although each RDC is funded separately and has a philosophy of operation developed independently of the others, the RDCs are similar insofar as each answers requests for information by processing literature searches of documents abstracted in the Scientific and Technical Aerospace Reports (STAR) and International Aerospace Abstracts (IAA) journals.

Interaction with clients has resulted in the acquisition by four RDCs of non-NASA information files to supplement the material of STAR and IAA. Access to these files can be made from any of the centers through an arrangement known as the NASA Network.

This document is a final report of the first year activities in the NASA Network of the Knowledge Availability Systems Center. The contract number for the work is NSR 39-011-105. The contract period was September 1, 1969 to August 31, 1970; there was one three month extension to November 30, 1970.

There are two major sections in this document. The first discusses the tasks performed by the KASC in its implementation of the Chemical Abstracts Services (CAS) Condensates file for the Network. The second section presents figures about the use to which the KASC put resources at other RDCs.

SECTION I
CHEMICAL ABSTRACTS SERVICE
CONDENSATES
AT THE
KNOWLEDGE AVAILABILITY SYSTEMS CENTER

SUMMARY

The KASC supports both current awareness and retrospective service on the Chemical Abstracts Services (CAS) Condensates file. During the contract period, the availability of these services brought \$12,860 to the Center. This income came from a total of 24 clients at KASC's end and unknown number of clients working through the other RDCs. A list of the KASC clients is given as Table 1-1.

The CAS Condensates file became available on a current awareness basis in the third quarter of 1969. In the eighteen month period terminating on November 30, 1970, the KASC did \$12,280 of current awareness business on the file.

The retrospective capability for this file was developed in the third quarter of 1970. Retrospective service can cover as much as a half million document references contained in Chemical Abstracts volumes 69 through 72. At the end of the contract period, retrospective business had resulted in \$580 of income.

The KASC sponsored two workshops for the major objective of training RDC personnel in the phrasing and coding of questions for the KASC search system. Other topics of general interest to the Network were also considered. The workshop were held on September 15-16, 1969 and March 12-13, 1970.

A computer system was developed to search CAS Condensates data which is in the newest format defined by CAS Condensates. The System is geared for medium sized machines of the IBM 360 series. It has been documented and is distributable.

CURRENT AWARENESS SERVICE

During the contract period the KASC processed 93 current awareness questions for a total of 1,727 searches. These figures indicate an average service life of 19 searches. This converts to nearly three quarters of a year.

Of the total numbers given above, 15 questions and 255 searches were done for RDCs other than KASC. This represents an average service life of 17 searches or about two-thirds of a year.

At the initiation of current awareness service on CAS Condensates in the third quarter of 1969, the KASC was assessing its clients @ \$7.50 per search while RDCs were assessed a wholesale rate of \$5.00 per search. As operations stabilized, this fee schedule was changed. The KASC now charges its clients a \$50 question start-up fee and \$5.00 per search for the question's life. RDCs are not charged a start-up fee and their per search rate is \$4.00.

Using the fee structure now in effect, the total value of current awareness service on CAS Condensates was \$12,280. This figure breaks down to approximately \$132 per question.

Of this total, the amount due to RDCs other than the KASC was \$1,020 -- an average of \$68 per question.

Detailed figures for current awareness service on CAS Condensates are given in Table 1-2.

RETROSPECTIVE SERVICE

The KASC started offering retrospective service on CAS Condensates during the third quarter of 1970. From that point until the end of the contract period, eight questions were service for a total of 36 search units.

The KASC retrospective file is organized into four volumes (69,70,71, and 72) and five divisions (Applied Chemistry and Chemical Engineering, Biochemistry, Macromolecular Chemistry, Organic Chemistry, and Physical and Analytical Chemistry). When a client enters a retrospective question he specifies which volumes and which divisions within those volumes that he wants covered. The term "search unit" is used to refer to a combination of a volume and a division.

All of the retrospective questions were entered through the KASC. The value of the questions was \$580. This figure is computed from a fee schedule which assesses a rate of \$50 plus \$5 per search unit.

WORKSHOPS

Two workshops were planned and executed during the contract period.

Both conferences had the same general objectives:

- Introduction and discussion of Network files.
- Introduction and discussion of Network communications conventions using TWX.
- Education in the phrasing and coding of profiles for CAS Condensates.
- Consideration of sample searches performed on CAS Condensates.

In addition to the Network business, at the first workshop a presentation was given by a representative for Computer Software Management and Information Center (COSMIC). All the RDCs act as agents for this organization.

The first workshop was held on September 15 and 16, 1969. The second was held on March 12 and 13, 1970. The number of participants (by RDC) at each workshop is given in Table 1-3.

COMPUTER SOFTWARE

The KASC developed a computer system for the IBM 360 series which searches CAS Condensates in "Standard Distribution Format" (SDF). The SDF is the data organization which CAS is implementing for all of its files (Condensates is but one).

A minimum configuration for the system includes a card reader/punch, a line printer, four magnetic tape units (2400 series, 9 track), one magnetic disk unit (2311 or 2314), and 144K bytes of main storage.

The system is made up of three programs. One provides for searching one or more questions against one or more tapes. A second is for printing the document references retrieved during a search. A third is for reorganizing the file to facilitate retrospective searches.

All the source modules in the system are coded in OS/360 Basic Assembly Language. They can be translated by a level F or higher Assembler. Prototype implementations have been conducted on both an IBM 360/40 (MFT) and an IBM 360/50 (MVT).

The system provides for all the familiar Boolean operations and for three types of truncation. Also accounted for are the evaluation of term adjacencies and selective searching of data within a document reference.

The system, known as the SDF Search System, is documented in two manuals: the first is intended to orient information analysts who know the contents of the SDF CAS Condensates file. It does not assume knowledge of computer programming. The companion manual is written for systems or applications programmers and does not assume knowledge of the SDF CAS Condensates.

These two manuals are titled SDF Search System Usage Manual and SDF Search System Implementation and Maintenance Manual respectively.

Table 1-1. CAS Condensates Clients (KASC only)

Atomic Manufacturing
Construction Industry Advancement Program
E. I. DuPont DeNemours & Company, Inc.
Jamestown Paint
Johnson and Johnson
Kawecki-Berylco
Koppers
Matthey Bishop
Mobay Chemical
Molybdenum
Philco-Ford
PPG - Coatings and Resins
PPG - Glass
Research and Development Manufacture
Salt Institute
Technicon
U. S. Bureau of Mines
U. S. Steel - Applied
Universal Lubricating
University of Arkansas
University of Minnesota
Westinghouse Electric Corporation - Atomic
Westinghouse Electric Corporation - Research & Development
Westinghouse Electric Corporation - Electro-Mechanical

Table 1-2. Current Awareness Service Summary for CAS Condensates

RDC	NUMBER OF			
	CLIENTS	QUESTIONS	SEARCHES	\$VALUE
ARAC	NA	1	6	24
KASC	21	78	1472	11,260
NERAC	NA	1	13	52
NCSTRC	NA	10	198	792
TAC	NA	1	15	60
WESRAC	NA	2	23	92
Total	21	93	1727	12,280

NA - Not Available

Table 1-3. Workshop Participants by RDC

RDC	WORKSHOP	
	I	II
ARAC	2	1
KASC	8	7
NASA-HQ	3	0
NCSTRC	4	2
NERAC	4	1
TAC	2	*0
WESRAC	2	*0
Total	25	11

*Workshop materials were mailed to these Centers. Telephone calls followed the mailings to insure that the materials had been received and were reasonably well understood.

SECTION II
OTHER NETWORK RESOURCES

SUMMARY

Network resources which the KASC accessed during the contract period include: the American Society of Metals/International Metals Metals Abstracts, the Engineering Index Compendex, and the U. S. Government Research and Development Reports. They are supported at NERAC, ARAC, and NCSTRC respectively.

The total income which came to KASC as a result of the availability of these additional resources was \$6,494. There were 36 clients who used the files of other RDCs through the KASC. These clients are listed in Table 2-1 together with an indication of what file they accessed.

ASM/IM METALS ABSTRACTS

The NERAC offers both current awareness and retrospective service on the American Society of Metals/International Metals Metals Abstracts file. The rates assessed by NERAC of KASC and by KASC of its clients are given in Table 2-2.

At the close of the contract period, the KASC had entered nine retrospective questions for a total of \$1,035 income.

EI COMPENDEX

The ARAC provides both current awareness and retrospective services on the Engineering Index (EI) Compendex file. The rates assessed by ARAC of KASC and by KASC of its clients are given in Table 2-3.

The KASC has entered Compendex questions on current awareness and retrospective bases. The number of clients, number of questions, number of searches, and dollar value to KASC of each service type are tabulated in Table 2-4.

The average service life of a current awareness question has been six searches. This is equivalent to one-half year.

The total income for the KASC due to EI Compendex was \$3,237. An average current awareness question has been worth approximately \$64, while the figure for retrospective questions is in the area of \$121.

THE UNITED STATES GOVERNMENT RESEARCH AND DEVELOPMENT REPORTS

The NCSTRC furnishes both current awareness and retrospective services on the United States Government Research and Development Reports (USGRDR) file. The rates assessed by NCSTRC of KASC and by KASC of its clients are given in Table 2-5.

The KASC has entered both current awareness and retrospective questions for the USGRDR file. Table 2-6 gives the statistics for usage by service type.

The average service life of a current awareness question has been five searches -- nearly half of a year.

The total income for the KASC from services on this file has been \$2,322. The dollar value of an average current awareness question has been \$38. Retrospective questions have averaged \$144.

Table 2-1. Other Network Resources Clients (KASC Only)

Client	File		
	ASM/IM	EI	USGRDR
Allegheny Plastics		X	
American Can			X
AMP		X	
ARK Electronics			X
Babcock and Wilcox		X	X
Best Management Services			X
Billico Manufacturing		X	
Construction Industry Adv. Program			X
Eastern Splash Mats		X	
E. I. DuPont	X		
Federal Metal		X	
FMC		X	X
Food and Drug Administration		X	
Girgy Chemical		X	X
Golden-Anderson Valve		X	
Hooker Chemical			X
Johnson and Johnson		X	
Liberty Mirror		X	
Mobay Chemical		X	
National Lead			X
Pennsylvania State Tool and Die		X	
Phillip-Morris Research	X		X
PPG - Coatings and Resins		X	
PPG - Glass		X	
Resin Research			X
Rubbermaid		X	
Sauereisen Cements		X	
Seidel, Gonda, and Goldhammer			X
Southwest Research Institute			X
Standard Press Steel		X	
U. S. Naval Development	X		
U. S. Steel - Applied	X		
Westinghouse - Electric	X	X	
Westinghouse - Electro-mech.	X	X	
Westinghouse - Nuclear	X	X	
Wood Industries			X
Totals	7	22	14

Table 2-2. Fee Schedules of NERAC and KASC For
ASM/IM Metals Abstracts Services

SERVICE	FEES	
	OF KASC	BY KASC
Current Awareness*	65	115
Retrospective	65	115

*For a year's service (12 searches)

Table 2-3. Fee Schedules of ARAC and KASC For
EI Compendex Services

SERVICE	FEES	
	OF KASC	BY KASC
Current Awareness**		
Standard Interest	48	80
Custom without review	*144	150
Custom with review		245
Retrospective		
Without review	*75	90
With review		115

*Based on estimates of output volume.

**For a year's service (12 searches).

Table 2-4. Service Summary for EI Compendex (KASC only)

SERVICE	NUMBER OF			\$ VALUE
	CLIENTS	QUESTIONS	SEARCHES	
Current Awareness	14	28	166	1,798
Retrospective	4	4	12	474
Combination*	8	8	8	965
Total	26	40	186	3,237

*Current Awareness and Retrospective

Table 2-5. Fee Schedules of NCSTRC and KASC for USGRDR Services

SERVICE	FEES	
	OF KASC	BY KASC
Current Awareness*		
Custom without review	15	85
Custom with review		180
Retrospective		
Without review	15	90
With review		185

*For a year's service (12 searches)

Table 2-6. Service Summary for USGRDR (KASC Only)

SERVICE	NUMBER OF			\$VALUE
	CLIENTS	QUESTIONS	SEARCHES	
Current Awareness	2	2	10	76
Retrospective	12	14	14	2,020
Combination*	1	1	9	126
Total	15	17	33	2,222

*Current Awareness and Retrospective